Secular Trends in Costs Per Highly Cited NHLBI Publication after the NIH Doubling

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Disclosures: None

Background

- Since the NIH doubling ended in 2003, NHLBI has seen substantial declines in real buying power.
- It is not clear whether there has been an associated decline in the number of highly-cited NHLBI-funded publications or in the efficiency of producing highly-cited publications.
- Newly available bibliometric methods and resources make it possible to measure citations after accounting for field of study, type of articles, and year of publication.

Objectives

- Ascertain time trends of relative citation impact emanating NHLBI supported work.
- Ascertain time trends in the cost per highly-cited NHLBI-supported publication since the end of the NIH-doubling.

Methods

- Inflation-adjusted ("BRDPI") NHLBI research funding data obtained from NIH RePORTER and the NIH Budget Office.
- Publications (PMIDs) identified through internal NIH grant and contract records.
- Publication years 2001 – 2011.
- Publications from grants were linked to their "InCites™" (Thompson Reuters) citation record.
  - InCites™ provides a normalized citation count for each publication stratifying by year of publication, type of publication, and field of science.
- Primary bibliometric endpoints:
  - Distribution of InCites percentiles over time.
  - Number of Top 10% papers (that is papers in the normalized 10th percentile or better) over time.
  - Costs per Top 10% paper published over time.
- Costs based on values 3 years prior to publication.

Results

- Total NHLBI papers: 107,287
  - Top 10% papers 22,937 (21%)

Table 1: Most Common Topics (by InCites) of NHLBI Papers Published between 2001 and 2011

Topic	Number (%)
Cardiac and Cardiovascular Systems	12,768 (12%)
Biochemistry and Molecular Biology	11,215 (10%)
Physiology	5,840 (5%)
Hematology	5,400 (5%)
Peripheral Vascular Disease	5,016 (5%)
Respiratory System	4,946 (5%)
Medicine, Research, and Experimental	3,762 (4%)
Immunology	3,625 (3%)
Endocrinology and Metabolism	3,431 (3%)
Pharmacology and Pharmacy	3,090 (3%)
Biophysics	2,659 (2%)
Surgery	2,229 (2%)
Public, Environmental, and Occupational Health	2,219 (2%)
Cell Biology	2,175 (2%)
Genetics and Heredity	2,083 (2%)

Figure 1: NHLBI Funding and R01 Awards During and After Doubling

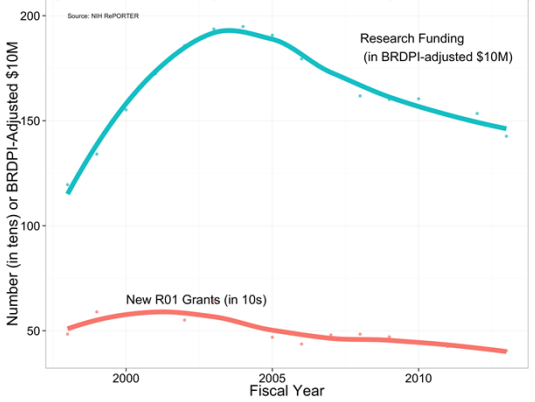


Figure 2: Citation Percentiles Over Time

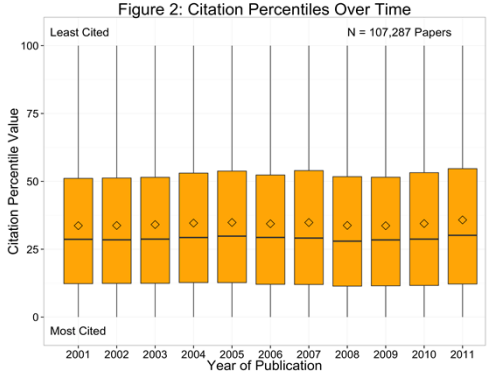
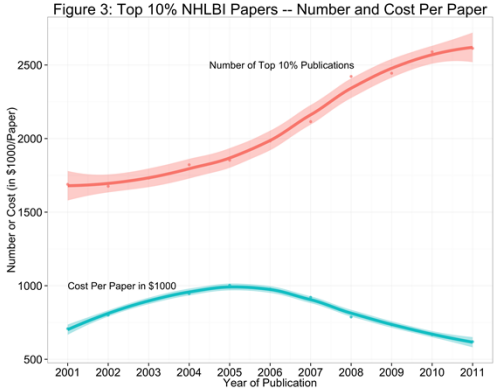


Figure 3: Top 10% NHLBI Papers -- Number and Cost Per Paper



Limitations

- Citations provide an incomplete picture of scientific impact.
- Pending analyses to consider grant/contract-level funding, mechanisms, topics, and other covariates.

Conclusions

- During and after the NIH-doubling, NHLBI-supported papers are highly cited – about twice as often as expected – and their relative citation impacts have remained stable.
- The number of NHLBI-supported top 10% papers has increased markedly since the end of the NIH-doubling.
- At a macro-level, the cost per top-10% paper published appears to be decreasing since the NIH-doubling ended.
- Further project-specific work is justified.